Accelerator Systems Division Highlights for the Week Ending August 16, 2002

ASD/LANL: Warm Linac

We finished two more transmitter factory acceptance tests at Titan, one of each frequency. The 402.5-MHz transmitter is the last one, so those systems are completed. (WBS 1.4.1.1)

The fifth Marconi tube is on track. It represents the third tube at full specifications. (WBS 1.4.1.1)

Two DTL windows are installed on the test stand waiting for the converter modulator to begin tests. (WBS 1.4.1.1)

Four LANL HPRF personnel were at Oak Ridge this week, and they completed the cable installation of the RFQ, DTL-1, and DTL-2. (WBS 1.4.1.1)

The converter-modulator rebuild effort to provide full 1-MVA operation was completed. Testing of the converter-modulator indicates assemblies are correct and complete. (WBS 1.4.1.2)

We performed further tests of the source of the 20-kHz sideband generation. The problem seems to be defective rectification capacitors. Units with a high dissipation factor were installed (for evaluation) by GA Sorrento, and they seem to be the source of the problem. (WBS 1.4.1.2)

The Dynapower SCR controller is installed. In initial operation, we discovered the unit motorboats and surges. The unit failed abruptly after ~15 seconds of high-power operation with significant damage: blown SC's, blown snubber resistors, and blown snubber capacitors. Dynapower is scheduled to visit the week of August 19 to assess the failure. (WBS 1.4.1.2)

The paper and presentation were completed for the upcoming Linac conference next week. Due to the pressing schedule with the HV system completion, Bill Reass, about 6 weeks ago, reluctantly decided not at attend the conference. Mike Lynch will present his talk. (WBS 1.4.1.2)

New FRCM modules are in and being tested. (WBS 1.4.1.3)

DSP code development is continuing on schedule. (WBS 1.4.1.3)

We are still waiting for new Altera flash chip for the HPM. The latest information from them indicates that we should receive the updated units late next week. (WBS 1.4.1.3)

The LLRF paper and presentation were completed for the upcoming Linac conference next week. Due to the pressing schedule with the LLRF system completion, Amy Regan reluctantly decided not at attend the conference. Mike Lynch will present her talk. (WBS 1.4.1.3)

We received the final report from the committee on the issue of leaking drift tubes. We are preparing a meeting with the welding firm on Monday to develop a process for implementation of the repair plan. (WBS 1.4.4.2)

A modified version of the “bridge design” for DT mount stiffening has been developed and a prototype is due by week’s end. Testing will follow the standard plan as developed and used for all previous versions. (WBS 1.4.4.2)

A formal confirmation of completion of the first article septum braze was received from ACCEL including an invoice for milestone payment. Although informal mail confirmed completion of task on 8/1/02, we now have the record of vacuum test certification as well. (WBS 1.4.4.4)

We received the prototype CCL BPM pickups from ISYS. This is the modified pickup with improved impedance matching to the connector and lobe changes to increase bandwidth. The electronic characteristics and mapping results will be reported next week. We expect the 11 production units to shop from ISYS on Aug. 27. The SCL pickups are scheduled for September. (WBS 1.4.5.2)

The revised PCI motherboard for the BPM electronics is back from fabrication and ready for testing. The modified DFE board is 75% complete in ECAD and will go out for fabrication next week. The AFE at Bergoz has been delayed by the European vacation month. The contract is in place, however, and calls for the first 12 to be completed within two months from Sept. 1. (WBS 1.4.5.2)

Wynn Christensen has taken over the design and fabrication of the wire-scanner electronics from Chris Rose. For the MEBT test at ORNL, he plans to add sockets for the ICs on the existing bias cards so the ICs can be easily swapped for either positive or negative bias. We plan to deliver four of the five units needed for the MEBT tests on Sept. 16 (one unit is already at ORNL). (WBS 1.4.5.2)

The completed D-Plate stand and spool pieces are now in the test lab building (MPF-17), and we plan to start assembly in two weeks. Fabrication of the two beam boxes and the spool piece to interface with the DTL is now expected be completed on Aug. 23, and the beam stop on Sept. 6. We expect the six production actuators needed for the D plate to be delivered by Huntington in September. Our best estimate at this time for shipping the D plate to ORNL is at the end of October. (WBS 1.4.5.2)

ASD/JLAB: Cold Linac

JLAB has completed a review of motor torque test data results for the CC1 cold compressor. The vendor conducted the tests in response to JLab's concerns of motor overload of CC1 presented in the PDR and FDR. Initial results showed a substantial drop in motor torque availability due to reduced power factor, motor efficiency, and applied voltage to the motor during the early stages of the pump down mode of operation. To offset these effects, Frequency/Voltage curve programming of the frequency converters has been modified to the JLAB developed curve with some further optimization. This produced a 40% reduction in motor loss current, keeping the motor from tripping off due to excessive current overload with expected pump down torque loads. With the modification, the torque margin was found to meet the 30% value required of the vendor for all anticipated loads.

All medium-ß end groups have been post-purified, most have been shipped back to the vendor and the balance is presently undergoing final chemistry in preparation for shipment.

All three cavities for the first production cryomodule have been shipped. The first cavity has been received and the second and third are in customs. The figure shows the first, in its shipping crate. It has undergone mechanical and RF inspection, degreasing and heat treatment. The resonant frequency shifted slightly and field flatness deteriorated since the unit was last measured at the vendors. This will be corrected with retuning, and an attempt will be made to understand the cause of the changes.

ASD/BNL: Ring

Craig Deibele was at BNL this week to meet with AP and Diagnostics Groups. The issues related to HEBT/Ring BPM sum/difference signal modes appear to be resolved.

Bob Lambiase is at Danfysik this week to inspect and test the production first articles low field power supplies. Testing will be conducted with the "PSI" interface modules.

Alex Zaltsman traveled to Danfysik this week to address issues related to the RF tune power supplies.

AP Group – efforts continue on a solenoid winding design for the Ring collimator straight section to prevent e-multipacting.

Danfysik – our weekly teleconference focused on the two major problems that are being encountered with the 12Q production run. The first concern is a 3% variation in integral field (within the first three magnets) while the second deals with water leaks in the stainless steel fittings. ASD, BNL and Danfysik are all involved in bringing these issues to a close.

26Q40 – the pole tip chamfer has been machined and reinstalled on the core. The magnet is being set-up in the test stand to confirm magnetic results.

Vacuum systems – completed design details of the 12 cm drift chambers; welding fixtures are being set up for the 21Q chambers; eighteen half cell chambers have been coated; the 1st article RF cavity beam pipe was coated. Design work on the RTBT chambers continues.

Priority has been given to update and revise the Ring and Transport lattice drawing. We expect to have revisions available for ASD review during September.

Three dipole pairs (6 magnets) have been matched for 1.3 Ge V operations.

Collecting sign-off approvals of magnet design/parameter sheets by the cognizant physicists, engineers, group leaders and STL.

A PCR was approved by ASD related to the procurement and options for the high field (ring dipole) power supply. IE Power was the successful bidder for this contract.

A Magnet Progress Schedule, dated 8/12/02, was submitted to ASD.

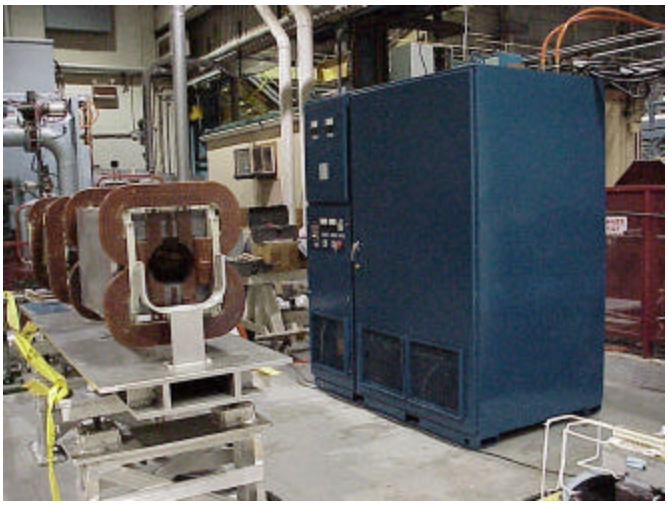
Efforts continue to identify ways to reduce collimator weight, while, at the same time, incorporate an integral lifting mechanism for the Ring crane hook.

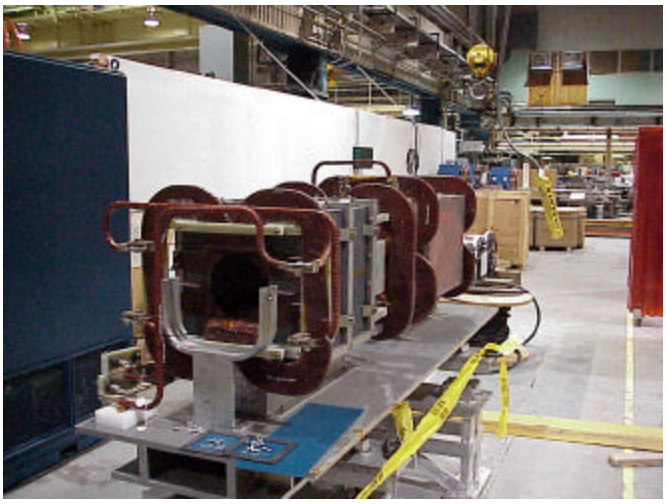
27CD30 (19) – New England Techni Coil was the successful bidder for this contract. Contract award is in progress.

Low level testing of the first article injection kicker PS continues at BNL. The power supply is connected to the SNS first article injection magnet. See attached photos.

Extended testing of the extraction kicker PFN will be completed this week. The tank will be opened for inspection next week.

Preparations are underway for the upcoming ASAC Review.





Controls

In preparation for the upcoming integration test, timing system hardware was successfully installed at Jlab this week. It will be integrated with the low-level RF crate next week.

A task order for RCCS racks for the CCL was awarded to the Rack Factory contractor (DCS). Work began on upgrading the firmware for the RCCS PLC processors located in RATS. The two 24Vdc supplies in each of these racks were powered up to verify their proper operation and output.

A draft Functional System Document (FSD) for the water tower was completed.

Communications backbone cabling was entered into the cable database. Preliminary analysis indicates there are enough duct bank conduits to route and separate cables as desired. The database will now be used to assign conduits and generate pull lists for contractors. Work began on a spreadsheet for network and timing cable routing for the SC section of the klystron gallery.

The Front End Control Room furniture was put in place this week, and the walls are in place. (See below) Communication wiring is in progress, and connections should be established next week.

All the controls racks in the HEBT, Ring, and RTBT service buildings have now been laid out, as have all known IOCs resident in other racks (vacuum, RF, diagnostics). All MPS, timing, and Ethernet connections have been identified, including Ethernet connections to waveform generators for injection kicker power supplies and oscilloscopes for extraction magnet current readbacks. A preliminary plan for building these controls racks has been established, but a written plan needs to be drafted.

The vendor has received the new MPS boards and the first two stuffed boards are due early next week. After system verification the remainder of the boards and chassis will be built. This initial order of 25 will satisfy MPS requirements through the end of the CCL.

Installation

Work proceeded in the RF Building. Preparations were made for conditioning that workspace.

The LANL RF "Lead" Visit was successful. There was some discussion of rough handling of RF equipment that was addressed.

A Front End Safety Briefing was conducted in the RATS Building on 8/13/02 The LANL Rf "Lead" Team took the training.

The Cryo group set the supply tee in the tunnel on Monday 8/12/02. Installation progressed rapidly to the vacuum jacket welding by week's end.

Wave-guide installation continued in the tunnel with progress extending through all DTL locations to #3 CCL location. Discussions were underway with LANL to secure additional tunnel wave-guide components for CCL location #4.

A meeting was held between the Electrical Safety Committed and CF Electrical on 8/13/02. Power will be available through DP-1 and DP-2 panels to support Front End System testing on 9/3/02. Full power of the Front End Building will begin at BOD on 10/14/02.

The third issue of the Thirty Day Look Ahead Schedule was presented at the Installation Meeting on Friday 8/16/02. A copy is attached. It was agreed to retain previously started activities on this schedule. This will allow them to have their status updated for the Installation Meeting.

The Division Director's Installation Meeting on Friday 10/16/02 reviewed the budgets supporting the remaining installation work in FY02 and the Work Package Planning for FY03. Installation progress overall is good.

The RF Group reported that the current ***forecast*** component delivery date for the first two HVCMs is now

9/19/02. This new delay in HVCM deliveries will make achieving the RFQ RF systems operational (10/15/02) and Front End Commissioning (10/29/02) dates a challenge.

The FE ac wiring, water, and air are still underway. A.C. power cabling has been installed to racks FER 13 - 25 and to all RFQ/MEBT raft outlets, the airlines have been run, and we are about half way on the water piping.

The temporary control room workstation shelves were adjusted to the proper heights and some additional ac drops and data connections are being installed.

The Ion Source Group brought out and installed the production ion source in the LEBT chamber to allow water connections and electrical leads to be routed. The flange connections were leak checked and look fine. We are currently pumping on the LEBT chamber and will do another leak test next week.

All RFQ cryo pumps have been leaked checked and conditioned for later operation. MEBT quadrupole cables were "rung-out" one last time, labeled, and connected. LEBT turbo pump cables were routed. The copper plate under the Blue Box was properly grounded. Fiber optic and control cable loops were finished. Based upon the best information we have, the question of MEBT/DTL interference was put to rest with no interference between the two.

Accelerator Physics

In response to an ASAC recommendation, the AP group is studying the use of "fast feedback" (software feedback of accelerator parameters) at other accelerator facilities for possible application to the SNS.

Papers and poster presentations for the LINAC conference in Korea were completed.

S. Danilov presented wideband feedback system parameters and simulation results at the AP video meeting. He finds that a gain of 0.01, accomplished with 10's of watts of RF power is required to damp the transverse instability associated with the extraction kicker impedance. For the electron cloud instability, 1-2 kW of RF power feeding three 0.5 m striplines is required.

The group continues the effort of specifying beamline device parameters and global coordinates in order to populate the central database. Work continues on application programs for both front-end commissioning and DTL commissioning.

Operations Group

Ion Source Group

The vented ion source together with the hot racks and transformers in the big blue box has been tested with 70 kV for 2.5 hours. The Glassman SH070N110 supply worked very well. Its arc-sensing and quenching system handled the few encountered sparks and no reset was required at any time.

John Munro and Syd Murray continue to work very hard to figure out, fabricate, assemble, install and test the missing components for the hot spare stand.

Paul Gibson, Robert Morton, and Syd Murray continue to participate in the installation of the front end.

Robert Welton prepared his invited talk on H- ion sources for the LINAC conference.

Five options have been worked out to solve the problem of the broken in-line switch of the DTI 65 kV supply. The decision awaits monetary considerations.

Mechanical Group

Five versions of the two drift tube mount stiffening concepts that were selected two weeks ago (the collet and the bridge designs) have been built and tested. All satisfy the design requirements and appear to be viable options. A

sixth design will be available for testing later this week. Based on the current results, the "can" concept that screws to the top of the top hat is the preferred option.

The Drift Tube Fabrication Recovery Group has issued their report. The report confirmed that the primary cause of drift tube leaks was porosity in the EB welds that was exposed after much of the weld material was machined away. Re-welding of this porous joint appears to be a feasible fix and will be confirmed by welding test samples at ISYS, the EB welding subcontractor. LANL will be meeting with ISYS next week to work out details of the plan.

Design Shop

Vacuum remote clamp - finished and out for pricing.

Development rig for testing/mock-up of clamps and beam dump window replacement is about 30% complete.

Beam lines to all dumps - layouts essentially finished, awaiting diagnostics information/clamping concept.

Warm section – essentially finished small mods to accommodate laser diagnostics.

DTL #3 - alignment mount modifications finished.

DTL #1 – layout of preferred mount arrangement 50% complete.

Magnet Systems

#9 Buss assembly, the last one, is about 50% complete.

We have completed field measurements on SN004, HEBT 12Q45, and have compared them with SN001, and SN011. There is a 3.3% difference between SN011 and SN001. The difference between SN011 and SN004 is 1%. We are looking into what might be causing this problem. Alignment has fiducialized SN004.

HEBT Dipole #6 has been measured and the Alignment Group is measuring the gap and fiducializing the magnet.

Vacuum Systems

Development of a capital purchase and resource loading plan to support the activities of the vacuum group next FY has commenced.

The ion source of the FES has been installed and is now under vacuum, The cables for the LEBT turbo pumps have been installed and leak testing of the cryopump installation is due to commence.

Leak testing of DTL-3 DT's continued with this week's activities being limited to retesting of suspected DT's. 14 retests were completed on 10 DT's of which 5 have been provisionally accepted. A 2nd retest will be conducted on 3-19 which registered a 10^{-6} T-l/s leak after being held at 70 psig helium pressure for about 15 minutes during the 1st retest. Under constant test conditions the leak disappeared after about 10 minutes and didn't reappear. The test was suspended after 90 minutes during which time the helium background remained in the 10^{-9} T-l/s range. This DT will now be baked out under vacuum over the weekend before being retested again. The original DT test tank is now being set-up to support the development of a DT acceptance leak test plan. In particular the effects of the moisture level measured in the DT cooling circuit with circulating dry nitrogen compared with water vapor levels being recorded in the vacuum tank will be investigated. This work is a key element in the development of a DT acceptance leak test plan.

The self-lubricating O-rings with a moly-disulfide additive have been received and preliminary friction tests have started. These O-rings are being evaluated as a potential replacement for the greased O-rings currently proposed to be used in the DT top hat assembly of the DTLs.

Dressing, repair and polishing of the O-ring grooves and sealing surfaces of tank section C of DTL-3 has been completed and work has now started on section B. The curved test plate to allow the leak testing of individual ports on the DTL tank is being remade in order to provide a better match to the tank profile for sealing. This plate will be available early next week, which will allow leak testing of both sections B and C to be completed.

Preliminary plating tests have been performed using the pen plating kit that is planned to be used to repair minor plating defects on DTL-3. Coatings using both acid and alkali copper and nickel were prepared on a carbon steel substrate and weathered overnight. Extensive corrosion occurred on the uncoated areas while the coated areas were visual unaffected. Further tests will be conducted to better control the strength of the coating solution and RGA scans made to ensure an acceptable mass spectrum.

Successfully test splicing were made using the new O-ring manufacturing kit.

RF Group

Four LANL people were here this week to interconnect transmitter equipment for RFQ, DTL 2 & 2 as part of the lead, mentor, consult agreement. Work went well with only minor complications. All 3 transmitter equipment were interconnected and final tidiness will be done early next week. A slightly different layout of transmitters in the RF shop freed ups more floor space for HPRF testing. Wiring of RF shop technical equipment will begin next week, don't know how much will get done. In the RATS 1 building, transmitters and HVCM equipment is being readied for installation in the gallery. Once gallery cable tray work and cable bulling is finished transmitters and HVCM equipment on hand will be positioned and interconnecting cabling work will start. Hengjie is at LANL and David Anderson is going there next week to get the scoop about the HVCM SCR unit failure. Mark Champion is acting group leader while I'm away the following week.

The design work on the RF reference system continues. Chip Piller will present the design at the Accelerator Physics videoconference on 8/27/2002.

The integrated test of the LLRF control system with the prototype cryomodule at JLab is on track to begin on 9/03/2002. Eric Bjorklund visited JLab this week to install the timing system. Hengjie Ma is visiting LANL this week and will remain there through early next week.

David Anderson will visit LANL next week to help diagnose problems with the SCR rack.

Reconfigured equipment in RF Building to allow for more HPRF Test Area space. Completed HPRF Test Area waveguide layout. Issued SRO for next phase of RF Building work (cable tray, plumbing, rack placement, and cabling). Completed design of low repetition rate resistive load for testing of HVCM and ordered major parts.

Electrical Systems Group

Ken Rust is in Denmark this week to perform acceptance tests on the magnet corrector power supplies.

The Electrical Safety group and members of the Electrical Systems Group met with representatives of conventional facilities division to discuss the electrical handover at BOD and issues of earlier power turnover. It was agreed that front end building technical systems power would be available 9/3/02 and that limited (208V and lower) klystron gallery technical power would be available two weeks later, with the remainder at BOD - 10/14/02.

Paul Holik, as head of the Electrical Safety Group, sent out a policy statement on "working hot" for comments.

The bids for the SCL magnet quad power supplies were reviewed and a revised spec was sent out for Best and Final Offers.

Final details for the ring main and medium power supply procurements were worked out and the orders will be finalized early next week.

Group members met with Don Richied to discuss work in support of electrical systems installation at the CHL.

The electrical systems group has assumed responsibility from the mechanical group for the water and vacuum electrical installation activities.

Survey and Alignment Group

Continuation of fiducialization of dipoles and quads.

Installation and measurement of new DTL area survey network. This network will provide the necessary geometry to data adjustments and should result an improved measurements.

Completed initial traverse and layout of ring survey monuments. D & B Crafts will begin coring and actual monument installation next week.

Continued layout of transfer line stands in the linac tunnel.

Laid out reference lines in linac dump and injection area.

Continued investigating drawing discrepancies at Target/RTBT interface.

Assisted Target Group in position verification of bulk shield liner.

Consulted with Target Group on Design Validation Test Stand.

Cryogenics Group

The cold box has been delayed till mid September. The foundations for the warm compressors are being prepared for the setting of the equipment the week of the 26th. The estimates for the trench and warm gas piping have been completed and the contracts should be awarded shortly.

The supply "T" section has been set in place and the internal piping has been welded and cold shocked (Photo). The outer vacuum jacked will be welded this week. Supply module HB2/HB3 has been set on the support stands.

Two transfer line supply and 2 return modules have been completed and are being shipped to the tunnel on 8/19/02.

Brian Hannah, the fourth technician for JLab has started his indoctrination training here on 8/12/02.

Beam Diagnostics

LANL SNS Beam Diagnostics Progress Report:

BPM pickups: We received the prototype CCL pickups from ISYS. This is the modified pickup with improved impedance matching to the connector and lobe changes to increase bandwidth. The electronic characteristics and mapping results will be reported next week. We expect the 11 production units to shop from ISYS on Aug. 27. The SCL pickups are scheduled for September.

BPM electronics: Cable fabrication is complete for the BPMs in DTL Tank 2. The revised PCI motherboard is back from fabrication and ready for testing. The modified DFE board is 75% complete in ECAD and will go out for fabrication next week. The AFE at Bergoz has been delayed by the European vacation month. The contract is in place, however, and calls for the first 12 to be completed within two months from Sept. 1. We plan to ship three of the six MEBT BPM electronic units to ORNL by Sept. 1 (unmodified from the LBL tests). One unit is already at ORNL, and the other two are needed here at LANL for another few months to complete testing of the PCI, DFE, and AFE modifications.

WS actuators: Fabrication continues at Huntington on the prototype and D-plate actuators. We expect the two prototypes (3 inch and 6 inch) on Aug. 26.

WS electronics: Wynn Christensen has taken over the design and fabrication from Chris Rose. For the MEBT test at ORNL, he plans to just add sockets for the ICs on the existing bias cards so the ICs can be easily swapped for either positive or negative bias. We plan to deliver four of the five units needed for the MEBT tests on Sept. 16 (one unit is already at ORNL). Wynn plans on additional revisions prior to the D-plate tests next year. These would include putting positive and negative bias on the same card and changing to linear drivers.

ED/FC: Design work continued to finalize details of the actuator assembly. The Simba air cylinders were finalized this week.

D-plate: Fabrication continues on the D-plate mechanical systems. The completed stand and spool pieces are now in the test lab building (MPF-17), and we plan to start assembly in two weeks. Fabrication of the two beam boxes and the spool piece to interface with the DTL is now expected be completed on Aug. 23, and the beam stop on Sept. 6. We expect the six production actuators needed for the D plate to be delivered by Huntington in September. Our best estimate at this time for shipping the D plate to ORNL is at the end of October.

BNL SNS Beam Diagnostics Progress Report:

General: Craig Deibele visited from ORNL. Craig will assume system responsibility for BCM and BPM systems upon handoff to ORNL. Discussions and meetings included BPM impedance, BPM and BCM system architectures, PCI card and Timing module, Laser Wire, and Electron Detectors. Completed informal BNL internal report on the Diagnostics Design Review. Working on Design Manual update, rack power requirements.

1.5.7.1 BPM: Conclusion from discussions of BPM sum/difference mode impedance match was that no changes are required for HEBT, Ring, and RTBT PUEs. PCI interface card design effort continues Spec for Bergoz is in progress.

1.5.7.2 IPM: Accelerator Physics discussions of IPM magnet design have led to the conclusion that the IPM magnets should be electromagnets. Budget includes only permanent magnets. Cost implications are being evaluated.

1.5.7.3 BLM: Working on the detailed circuit design of the digital interface to the SNS controls system. This includes a remote and local poling scheme to monitor the status of all the jumpers on the AFE. The circuit components for this interface will reside partially on a separate logic module (installed in AFE chassis), and partially on each AFE module.
? Prototyping the analog comparator circuit for the MPS threshold input.

1.5.7.4 BCM: One minor artwork error was discovered on the new rev circuit board. A go-ahead to stuff the remaining four boards was given to assure delivery for MEBT and DTL commissioning. A spec for the base-band AFE is underway. The BCM Calibrator design continues.

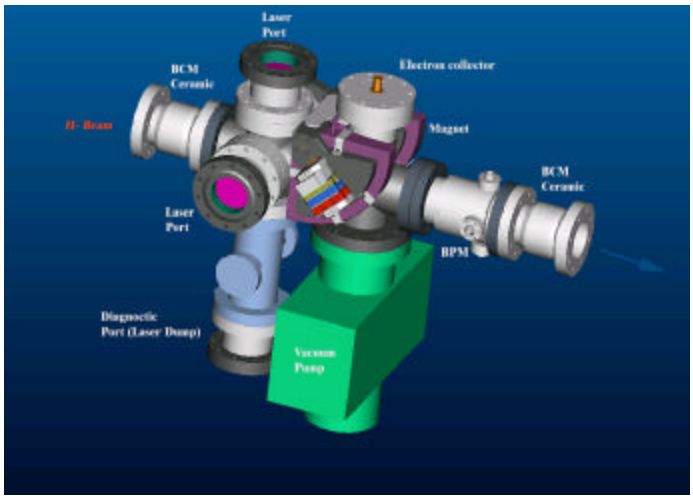
1.5.7.6a Carbon Wire Scanner: Huntington has been given detailed ordering information for the encoders. Huntington has placed the order, and promised to deliver the six upgraded feedthroughs (with new bellows and brakes) no later than the end of August. A new carbon wire attachment method has been tried out to connect the carbon and copper wire by filling Indium into a copper sleeve with a copper and carbon wire in it. Reasonable success was achieved. An order has been placed to fabricate more copper sleeves for the production use. Developing a connector that can separate the fork from the rest of the actuator Fabricating spring fingers (a preparation for the fork reassembly)

1.5.7.6b Laser Wire Scanner: We have outlined a proposal for testing a laser welder and electron detector for LPM in the BNL Linac. Commercial laser welders can deliver 1ms pulses of average power 5kW over optical fibers of at least 100m (possibly 200m) lengths. Units can be bought with 6 fiber optics. All of the laser output can be switched to any output. A request for 25cm additional space has been made from the vacuum group to accommodate the additional cross downstream of the laser wire in HEBT for the magnet and the electron detector Awaiting word from ORNL on whether a second laser wire installation is desired at MEBT

ORNL SNS Beam Diagnostics Progress Report:

Craig traveled to Brookhaven and learned about system integration of the BPM and BCM systems. He also discussed the BPM impedance in some detail. He is writing technical note describing the result that the impedance match of the electrodes should be the geometric mean and not the sum mode. The Ring electrodes are not affected by this result since electronics are being designed for low frequency measurements.

One of the outcomes of our Laser-wire collaboration with SLAC was to look into the mechanical vibration of the transport line. A preliminary result from Sasha does not show a problem. Warren is detailing the mechanical stability analysis. We will have a detailed analysis in two weeks. Warren is also working with the mechanical engineers (Danny Mangra) and the designers on the laser wire optics. We are having our first internal review of the Laser-wire optics box on Monday (August-19-2002). The design of the laser vacuum box for tests at Fermilab/BNL, which in addition to the SCL laser-wire beam-box it includes, the ceramic sections for the differential current measurements and SCL prototype BPM is complete.



Arden Warner from Fermilab has offered to lend us a carbon-wire to compare the laser profile to the carbon profile. Dave Purcell is working with John Kristy to convert the room-55 at RATS to a laser testing room. Joe Error and Dan Stout are working with CF to provide us with a clear optical path in the tunnel.

Dave and Wim are working on the TDR automation station. They are also working on the Labview application for diagnostic bar coding. Wim has written a document on Laser-wire DAQ/analysis. Wim reports that the stepper motor software is fully functional. This software will be used for both Laser-wires and BPM test station. Wim is also distributing a Labview template for all diagnostic low level NAD software. Saeed is working on Laser-wire progress report.

We received an alternate laser wire design proposal from Connolly/Cameron. We will look at its feasibility and report next week.

We are working with INR on neutron detectors specifications. Meanwhile, Sasha Zhukov is simulating the n/p production from 2.5 MeV to 100 MeV.

Craig Swanson completed the timing circuit schematic and will send it out for layout next week.

An offer has been accepted for one of our senior technician positions.